Cited Reference 4

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Japanese Patent Application No. 318646/1989

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Applicant: Yamahatsu Sangyo Co., Ltd.

Title of Invention: Aerosol Hair Dressing Agent

Disclosure A: (Page 1, left lower column line 2 to page 2 left upper column 14) "Claims

Claim 1. An aerosol hair dressing agent which comprises a foaming agent, a propellant and water, characterized in that (i) at least one of amophoteric polymeric resins having molecular weight of 5000~500000 represented by the following general formula:

$$\begin{array}{c|c}
 & R_{5} \\
 & CH - C \\
 & C = 0 \\
 & A \\
 & R_{7} \\
 & R_{8} \\
 & R_{2} - N - R_{4} - C = 0 \\
 & R_{3}
\end{array}$$

$$\begin{array}{c|c}
 & R_{5} \\
 & CH - C \\
 & C = 0 \\
 & R_{5} \\
 & R_{8}
\end{array}$$

$$\begin{array}{c|c}
 & R_{5} \\
 & CH - C \\
 & C = 0 \\
 & R_{5} \\
 & R_{8}
\end{array}$$

$$\begin{array}{c|c}
 & R_{5} \\
 & R_{8} \\
 & R_{1} \\
 & R_{2} \\
 & R_{3}
\end{array}$$

$$\begin{array}{c|c}
 & CH - C \\
 & C = 0 \\
 & R_{5} \\
 & R_{5} \\
 & R_{5} \\
 & R_{1} \\
 & R_{2} \\
 & R_{3} \\
 & R_{3} \\
 & R_{4} \\
 & R_{5} \\
 &$$

[wherein R_1 and R_5 , which are the same or different, represent hydrogen or methyl, R_2 and R_3 , which are the same or different, represent alkyl having $1 \sim 4$ carbon atoms, R_4 and R_7 , which are the same or different, alkylene having $1 \sim 4$ carbon atoms, R_6 is alkyl or alkenyl having $1 \sim 24$ carbon atoms, A represents oxygen or NH group, $n : m = 90 : 10 \sim 50 : 50$]

and/or (ii) at least one of non-ionic polymeric resins having molecular weight of 10000~200000 represented by the following general formula:

[wherein R is hydrogen or alkyl having 1 ~ 4 carbon atoms, n' :m' = 100 : 0 ~ 30 :70.]

are further contained in an amount of $0.05 \sim 10.0$ % by weight based on the total amount, when sprayed from an earosol vessel and applied to hair, said hair dressing agent foams on hair.

Claim 2. The aerosol hair dressing agent according to claim 1 wherein at least one of an anionic surfactant, a cationic surfactant, an amophoteric surfactant and non-ionic surfactant is contained as the foaming agent in the amount of 0.05 to 10.0 % by weight based on the total amount.

Claim 3. The aerosol hair dressing agent according to claim 1 wherein a mixture of a liquefied petroleum gas (LPG) and dimethyl ether (DME) (weight ratio of 5/95 ~ 40/60) are contained as the propellant in the amount of 10.0 to 40.0 % by weight based on the total amount.

Claim 4. The aerosol hair-dressing agent according to claim 1 wherein water is contained in the amount of $89.9 \sim 10.0$ % by weight based on the total amount."

PATENT ABSTRACTS OF JAPAN

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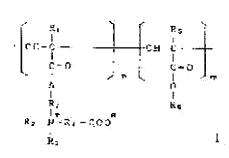
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(22)Date of filing: 07.12.1989 (72)Inventor: SHIMIZU AYAKO

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(54) AEROSOL HAIR-DRESSING AGENT



(57) Abstract:

PURPOSE: To obtain an aerosol hair-dressing agent having excellent hair-dressing performance, free from stickiness, flaking tendency, etc., giving excellent feeling after application, sprayable in the state of mist and foaming after application by compounding a foaming agent, a propellant, a specific amount of an ampholytic polymer resin and a nonionic polymer resin.

CONSTITUTION: The objective agent contains (A) one or more kinds of ampholytic polymer resins expressed by formula I (R1 and R5 are H or methyl; R2 and R3 are 1-4C alkyl; R4 and R7 are 1-4C alkylene; R6 is 1-24C alkyl or alkenyl; A is O or NH; n:m is 90:10-50:50) and having molecular weight of 5,000-500,000 and/or (B) one or more kinds of nonionic polymer resins expressed by formula II (R is H or 1-4C alkyl; n':m' is 100:0-30:70) and having molecular weight of 1,000-200,000. The total amount of the

resins is 0.05-10.0wt.% based on the total composition including a foaming agent, a propellant and water. The hair-dressing agent is sprayed from an aerosol container in the form of mist and foams when attached to the hair.